Claims

1. A process for the polymerisation of olefin monomers selected from (a) ethylene, (b) propylene (c) mixtures of ethylene and propylene and (d) mixtures of (a), (b) or (c) with one or more other alpha-olefins in a polymerisation reactor, said process being carried out in the presence of a catalyst system comprising (a) a polymerisation catalyst and (b) an ionic activator said process *characterised* in that an organometallic compound of a Group IIIB metal having at least one unit of formula:

M—O—R or M—O—M

where M is the Group IIIB metal and R is a hydrocarbyl group is added to the reactor.

2. A process according to claim 1 wherein the Group IIIB metal is aluminium or boron.

3. A process according to either of the preceding claims wherein the organometallic compound is an aluminoxane.

4. A process according to claim 3 wherein the aluminoxane is tetraisobutylaluminoxane.

5. A process according to claim 1 wherein the organometallic compound is a metal alkoxide.

6. A process according to claim 5 wherein the metal alkoxide is diethylaluminium ethoxide.

7. A process according to any of the preceding claims wherein the molar ratio of the organometallic compound to the polymerisation catalyst (metal) is in the range 0.1:1 to 1000:1.

8. A process according to any of the preceding claims wherein the molar ratio of the organometallic compound to the polymerisation catalyst (metal) is in the range 1:1 to 100:1.

9. A process according to any of the preceding claims wherein the organometallic compound is added to the reactor admixed with the catalyst system.

10. A process according to any of the preceding claims wherein the organometallic compound is added continuously to the reactor.

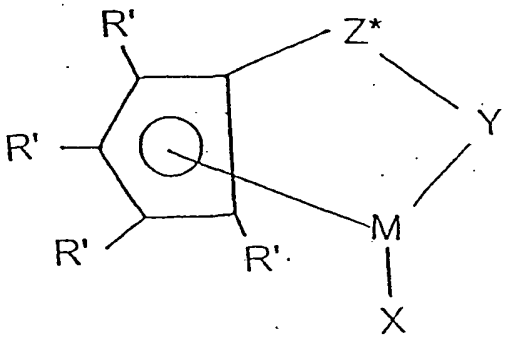
11. A process according to any of the preceding claims wherein the polymerisation catalyst is a metallocene.

12. A process according to claim 11 wherein the metallocene has the formula:

$CpMX_n$

wherein Cp is a single cyclopentadienyl or substituted cyclopentadienyl group optionally covalently bonded to M through a substituent, M is a Group VIA metal bound in a η^5 bonding mode to the cyclopentadienyl or substituted cyclopentadienyl group, X each occurrence is hydride or a moiety selected from the group consisting of halo, alkyl, aryl, aryloxy, alkoxy, alkoxyalkyl, amidoalkyl, siloxyalkyl etc. having up to 20 non-hydrogen atoms and neutral Lewis base ligands having up to 20 non-hydrogen atoms or optionally one X together with Cp forms a metallocycle with M and n is dependent upon the valency of the metal.

13. A process according to claim 11 wherein the metallocene is represented by the general formula:



wherein:-

R' each occurrence is independently selected from hydrogen, hydrocarbyl, silyl, germyl, halo, cyano, and combinations thereof, said R' having up to 20 nonhydrogen atoms, and optionally, two R' groups (where R' is not hydrogen, halo or cyano) together form a divalent derivative thereof connected to adjacent positions of the cyclopentadienyl ring to form a fused ring structure;

X is a neutral η^4 bonded diene group having up to 30 non-hydrogen atoms, which forms a π-complex with M;

Y is -O-, -S-, -NR*-, -PR*-,

M is titanium or zirconium in the + 2 formal oxidation state;

Z* is SiR^*_2, CR^*_2, $SiR^*_2SIR^*_2$, $CR^*_2CR^*_2$, $CR^*=CR^*$, $CR^*_2SIR^*_2$, or GeR^*_2, wherein:

R* each occurrence is independently hydrogen, or a member selected from hydrocarbyl, silyl, halogenated alkyl, halogenated aryl, and combinations thereof, said R* having up to 10 non-hydrogen atoms, and optionally, two R* groups from Z* (when R* is not hydrogen), or an R* group from Z* and an R* group from Y form a ring system.

14. A process according to any of the preceding claims wherein the ionic activator has the general formula:

$$(L^*\text{-}H)^+_d\ (A^{d-})$$

wherein

L* is a neutral Lewis base

$(L^*\text{-}H)^+_d$ is a Bronsted acid

A^{d-} is a non-coordinating compatible anion having a charge of d^-, and

d is an integer from 1 to 3.

15. A process according to claim 14 wherein the ionic activator comprises a cation and an anion wherein the anion has at least one substituent comprising a moiety having an active hydrogen.